## Claims

We claim:

1. A method for high-throughput screening of reaction products comprising: determining any one or all of enantiomeric ratios, absolute configuration and percent conversion for the products of at least 10,000 reactions in 48 hours or less.

2. The method of claim 1, wherein any one or all of enantiomeric ratios, absolute configuration and percent conversion for the products of at least 10,000 reactions is determined in 24 hours or less.

3. The method of claim 1, wherein any one or all of enantiomeric ratios, absolute configuration and percent conversion for the products of at least 10,000 reactions is determined in 1 hour or less.

4. A method of analyzing the components of one or more reaction mixtures comprising:

arraying the components of one or more reaction mixtures on a surface;

contacting the components of one or more reaction mixtures with one or more sets of identification reagents, whereby the identification reagent comprises a detection reagent and an identification moiety; and

analyzing said one or more reaction mixtures, whereby interaction of the identification reagents with the components of the reaction mixtures enables determination of the identity of the reaction components, and whereby each identification reagent is capable of being uniquely identified.

5. The method of claim 4, wherein the step of arraying comprises printing at least 10,000 reaction mixtures.

6. The method of claim 4, wherein the steps of contacting and analyzing comprise:

contacting the components of one or more reaction mixtures with a first set of identification reagents and analyzing the components, whereby interaction of said identification reagents with the reaction components enables determination of any one or all of enantiomeric ratios, absolute configuration or percent conversion; and

contacting the components of one or more reaction mixtures with a second set of identification reagents and analyzing the components, whereby interaction of said identification reagents with the reaction components enables determination of functional group identities of one or more or the reaction components.

7. The method of claim 4, wherein the identification reagent is a chiral detecting reagent.

8. The method of claim 6, further comprising a step of determining percent yield based upon the determination of the functional group identities of one or more reaction components.

9. A method for analyzing reaction products for one or more reactions comprising:

arraying one or more samples of one or more reaction products on a surface;

contacting said one or more samples of reaction products from said one or more reactions with one or more sets of chiral detecting reagents, wherein each chiral detecting reagent comprises a detecting reagent and a chiral reagent; and

analyzing said one or more samples of reaction products, whereby interaction of said chiral detecting agents with the reaction products enables determination of any one or all of enantiomeric ratios, absolute configuration and percent conversion.

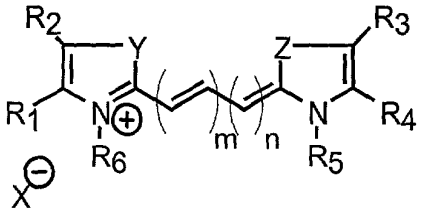
10. The method of claim 9, wherein the step of arraying comprises printing at least 10,000 reaction products.

11. The method of claim 9, wherein the step of analyzing is conducted using a scanning technique.

12. The method of claim 9, wherein the step of analyzing comprises analyzing 10,000 or more samples in 48 hours or less.

13. The method of claim 9, wherein the step of arraying comprises printing one or more samples of enantiomeric reaction products.

14. The method of claim 4 or 9, wherein at least one set of chiral detecting reagents comprises a pair of reagents, each having the following structural formula **(I):**



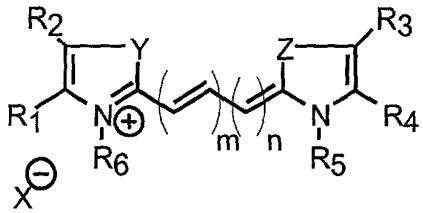

**(I)**

wherein $R_1$ and $R_2$ , and $R_3$ and $R_4$ taken together each independently comprise a substituted or unsubstituted cyclic or polycyclic aryl or heteroaromatic moiety; wherein m is 1, 2, or 3; wherein n is 0 or 1; wherein Z or Y each independently comprise $CR_2$, wherein each occurrence of the functional moiety R, is independently selected from the group consisting of hydrogen and methyl; NR, wherein R is selected from the group consisting of hydrogen and methyl; O; S; or Se; wherein X is a non-coordinating negative counter ion; and wherein $R_5$ or $R_6$ each independently comprise lower alkyl, a chiral reagent (CR) or a chiral reagent and linker (L-CR), whereby said chiral reagent is attached to the detecting agent via the linker, with the proviso that at least one of $R_5$ or $R_6$ is a chiral reagent (CR) or a chiral reagent and linker (L-CR); and

wherein the chiral reagent (CR) for the first chiral detecting reagent (CDR) and for the second chiral detecting reagent (CDR) in a pair are enantiomers, and wherein each of said chiral detecting reagents in a set is capable of selectively reacting with one enantiomeric reaction product over the other enantiomeric reaction product in a sample of reaction products and is capable of being uniquely identified.

15. The method of claim 14, wherein for each of said chiral detecting reagents, $R_1$ and $R_2$ and $R_3$ and $R_4$ taken together each comprise a benzene moiety, $C_6H_6$ ; wherein each of X and Y are -$C(CH_3)_2$ wherein the linker moiety, L, comprises –$(CH)_p$-(CO)-; wherein p is 1-5, and wherein the chiral reagent (CR) comprises a chiral acylating agent having the general structure: -(NH)-($CHR_x$)-COOH, where $R_x$ comprises a chiral amino acid residue.

16. A chiral detecting reagent comprising the structure **(I):**




**(I)**

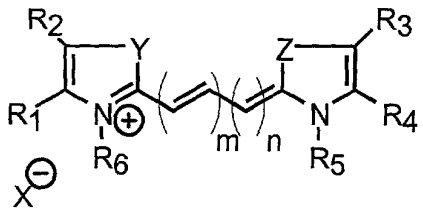
wherein $R_1$ and $R_2$ , and $R_3$ and $R_4$ taken together each independently comprise a substituted or unsubstituted cyclic or polycyclic aryl or heteroaromatic moiety; wherein m is 1, 2, or 3; wherein n is 0 or 1; wherein Z or Y each independently comprise $CR_2$, wherein each occurrence of the functional moiety R, is independently selected from the group consisting of hydrogen and methyl; NR, wherein R is selected from the group consisting of hydrogen and methyl; O; S; or Se; wherein X is a non-coordinating negative counter ion; and wherein $R_5$ or $R_6$ each independently comprise lower alkyl, a chiral reagent (CR) or a chiral reagent and linker (L-CR), whereby said chiral reagent is attached to the detecting agent via the linker, with the proviso that at least one of $R_5$ or $R_6$ is a chiral reagent (CR) or a chiral reagent and linker (L-CR).

17. The compound of claim 16, wherein $R_1$ and $R_2$ and $R_3$ and $R_4$ taken together each comprise a benzene moiety, $C_6H_6$ ; wherein each of X and Y are -$C(CH_3)_2$ ; wherein the linker moiety comprises –$(CH)_p$-(CO)-; wherein p is 1-5, and wherein the chiral reagent comprises a chiral acylating agent having the general structure: -(NH)-($CHR_x$)-COOH, where $R_x$ comprises a chiral amino acid residue.

18. A kit comprising:

one or more sets of chiral detecting reagents, wherein each set of chiral detecting reagents includes a pair of reagents for reaction with one or more functional groups present in products to be analyzed, wherein each chiral detecting reagent of each pair is capable of selectively reacting with one enantiomeric product over another in a reaction mixture, and whereby each chiral detecting reagent is capable of being uniquely identified.

19. The kit of claim 18, wherein at least one set of chiral detecting reagents comprises the structural formula:



(I)

wherein $R_1$ and $R_2$ , and $R_3$ and $R_4$ taken together each independently comprise a substituted or unsubstituted cyclic or polycyclic aryl or heteroaromatic moiety; wherein m is 1, 2, or 3; wherein n is 0 or 1; wherein Z or Y each independently comprise $CR_2$, wherein each occurrence of the functional moiety R, is independently selected from the group consisting of hydrogen and methyl; NR, wherein R is selected from the group consisting of hydrogen and methyl; O; S; or Se; wherein X is a non-coordinating negative counter ion; and wherein $R_5$ or $R_6$ each independently comprise lower alkyl, a chiral reagent (CR) or a chiral reagent and linker (L-CR), whereby said chiral reagent is attached to the detecting agent via the linker, with the proviso that at least one of $R_5$ or $R_6$ is a chiral reagent (CR) or a chiral reagent and linker (L-CR); and

wherein the chiral reagent (CR) for the first chiral detecting reagent (CDR) and for the second chiral detecting reagent (CDR) in a pair are enantiomers, and wherein each of said chiral detecting reagents is capable of selectively reacting with one enantiomeric reaction product over the other enantiomeric reaction product in a pair and is capable of being uniquely identified.

20. The kit of claim 19, wherein $R_1$ and $R_2$ and $R_3$ and $R_4$ taken together each comprise a benzene moiety, $C_6H_6$; wherein each of X and Y are $-C(CH_3)_2$ wherein the linker moiety comprises $-(CH)_p-(CO)-$; wherein p is 1-5, and wherein the chiral agent comprises a chiral acylating agent having the general structure: $-(NH)-(CHR_x)-COOH$, where $R_x$ comprises a chiral amino acid residue.

21. The kit of claim 19, wherein the kit further comprises at least one set of identification reagents, wherein said identification reagents comprise a detection reagent and an identification moiety, whereby the identification moiety is capable of reacting with specific functional groups in a reaction mixture, and enables determination of functional group identity and percent yield.